

Attorney Docket No.: 0180144

In the Claims:

Claim 1 (currently amended): A FET situated over a substrate, said FET comprising:

a channel situated in said substrate;

a first gate dielectric situated over said channel, said first gate dielectric having a first coefficient of thermal expansion;

a first gate electrode situated over said first gate dielectric, said first gate electrode having a second coefficient of thermal expansion;

wherein said first gate dielectric and said first gate electrode are selected such that
a difference between said second coefficient of thermal expansion is different than and
said first coefficient of thermal expansion so as to cause causes an increase in carrier mobility in said FET.

Claim 2 (original): The FET of claim 1 wherein said second coefficient of thermal expansion is greater than said first coefficient of thermal expansion.

Claim 3 (original): The FET of claim 2 wherein said increase in said carrier mobility is caused by a tensile strain created in said channel.

Claims 4-5 (canceled).

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Claim 6 (original): The FET of claim 1 wherein said FET is a PFET.

Claim 7 (original): The FET of claim 6 wherein said first coefficient of thermal expansion is greater than said second coefficient of thermal expansion so as to cause a compressive strain in said channel, said compressive strain causing said increase in said carrier mobility.

Claim 8 (canceled).

Claim 9 (currently amended): A FET situated over a substrate, said FET comprising a channel situated in said substrate, a first gate dielectric situated over said channel, said first gate dielectric having a first coefficient of thermal expansion, a first gate electrode situated over said first gate dielectric, said first gate electrode having a second coefficient of thermal expansion, said FET being characterized in that:

said first gate dielectric and said first gate electrode are selected such that a difference between said second coefficient of thermal expansion being different than and said first coefficient of thermal expansion so as to cause causes an increase in carrier mobility in said FET.

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Claim 10 (original): The FET of claim 9 wherein said second coefficient of thermal expansion is greater than said first coefficient of thermal expansion so as to cause a tensile strain in said channel, said tensile strain causing said increase in said carrier mobility.

Claims 11-12 (canceled).

Claim 13 (original): The FET of claim 9 wherein said FET is a PFET, said first coefficient of thermal expansion being greater than said second coefficient of thermal expansion so as to cause a compressive strain in said channel, said compressive strain causing said increase in said carrier mobility.

Claim 14 (canceled).

Claim 15 (currently amended): A FET situated on a substrate, said FET comprising:

a channel situated in said substrate;
a gate stack situated over said channel;
a first gate dielectric situated in said gate stack, said first gate dielectric having a first coefficient of thermal expansion;

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a first gate electrode situated over said first gate dielectric, said first gate electrode having a second coefficient of thermal expansion;
wherein said first gate dielectric and said first gate electrode are selected such that a difference between said second coefficient of thermal expansion is different than and said first coefficient of thermal expansion ~~so as to cause~~causes a strain in said channel, said strain causing an increase in carrier mobility in said FET.

Claim 16 (original): The FET of claim 15 wherein said second coefficient of thermal expansion is greater than said first coefficient of thermal expansion so as to cause a tensile strain in said channel, said tensile strain causing said increase in said carrier mobility.

Claims 17-18 (canceled):

Claim 19 (original): The FET of claim 15 wherein said FET is a PFET, said first coefficient of thermal expansion being greater than said second coefficient of thermal expansion so as to cause a compressive strain in said channel, said compressive strain causing said increase in said carrier mobility.

Claim 20 (canceled).